

CLAIMS

WHAT IS CLAIMED IS:

- 1 1. A canopy feed apparatus for a trim press comprising:
2 (a) an endless belt conveyor having a conveyor belt with a
3 top facing side extending from an intake end to a discharge end and a
4 motor connected to the belt to drive the belt, the conveyor mounted
5 adjacent to a trim press to extend upwardly from horizontal from the
6 intake end to the discharge end to feed the trim press with plastic sheet
7 discharged from the discharge end; and
8 (b) guides mounted at the discharge end of the conveyor
9 to guide plastic sheet discharged from the conveyor into the trim press.
- 1 2. The apparatus of Claim 1 further including a pair of
2 guide wheels in position to selectively press against a plastic sheet
3 supported on a top facing side of the conveyor belt at a position
4 proximate to the intake end of the conveyor and a pair of lateral guide
5 plates in position above the top facing side of the conveyor belt to
6 laterally position an incoming sheet and means for mounting the guide
7 wheels and the guide plates for adjustment of the lateral position of the
8 guide wheels and the guide plates.
- 1 3. The apparatus of Claim 2 wherein the means for
2 mounting the guide wheels and guide plates include at least one mounting
3 bar extending laterally between frame members above the top facing side
4 of the conveyor belt, a clamp for each guide wheel and guide plate
5 mounted for sliding movement on the mounting rod and including a
6 locking mechanism by which the clamp can be locked in a selected lateral

7 position, a guide wheel and a guide plate mounted to each clamp to move
8 therewith in lateral adjustment.

1 4. The apparatus of Claim 1 further including means for
2 detecting a plastic sheet extending outwardly from the discharge end of
3 the conveyor belt a selected distance and for controlling the motor of the
4 conveyor to shut off power to the motor when a section of plastic sheet
5 exiting the conveyor extends the selected distance from the discharge
6 end, and for supplying power to the motor to drive the conveyor when
7 the plastic sheet exiting from the conveyor does not extend the selected
8 distance outwardly from the discharge end of the conveyor.

1 5. The apparatus of Claim 4 wherein the means for
2 detecting includes a limit switch with a trip rod extending therefrom
3 mounted such that the trip rod is spaced a selected distance from the
4 discharge end of the conveyor in position to be contacted by a section of
5 plastic sheet discharged from the conveyor, the limit switch electrically
6 connected to the motor for the conveyor to shut off power to the motor
7 when a section of plastic sheet is in contact with the trip rod so as to trip
8 the limit switch, and to supply power to the motor to drive the conveyor
9 when the plastic sheet exiting from the conveyor is out of contact with
10 the trip rod.

1 6. The apparatus of Claim 4 further including a blower
2 mounted beneath the discharge end of the conveyor to blow air outwardly
3 to push the plastic sheet exiting from the conveyor away from the
4 discharge end of the conveyor.

1 7. The apparatus of Claim 1 wherein the conveyor belt is
2 formed of a flexible plastic material having a selected coefficient of
3 friction with regard to plastic sheet material to be supported by the
4 conveyor.

1 8. The apparatus of Claim 1 wherein the top facing
2 surface of the conveyor extending at an angle of approximately 30° from
3 horizontal from the intake end to the discharge end of the conveyor.

1 9. The apparatus of Claim 1 wherein the guides comprise
2 curved guide rods extending above and below the position of plastic sheet
3 exiting from the discharge end of the conveyor and formed to guide the
4 plastic sheet to a position where it is fed into the trim press.

1 10. The apparatus of Claim 9 further including means for
2 adjustably setting the lateral positions of the curved guide rods.

1 11. A canopy feed apparatus for a trim press comprising:

2 (a) frame members forming a frame;

3 (b) an endless belt conveyor mounted to the frame having
4 a conveyor belt with a top facing side extending from an intake end to a
5 discharge end and a motor connected to the belt to drive the belt, the
6 conveyor mounted to the frame to extend upwardly from horizontal from
7 the intake end to the discharge end when the feed apparatus is installed
8 to feed a trim press;

9 (c) a pair of lateral guide plates positioned above the top
10 facing side of the conveyor belt proximate to the intake end of the
11 conveyor to laterally position an incoming sheet; and

12 (d) means for mounting the guide plates for adjustment of
13 the lateral position of the guide plates.

1 12. The apparatus of Claim 11 including a pair of guide
2 wheels positioned to selectively press against a plastic sheet supported on
3 a top facing side of the conveyor belt at a position proximate to the intake
4 end of the conveyor and means for mounting the guide wheels to the
5 frame for adjustment of the lateral position of the guide wheels.

1 13. The apparatus of Claim 12 wherein the means for
2 mounting the guide wheels and guide plates include at least one mounting
3 bar extending laterally between frame members above the top facing side
4 of the conveyor belt, a clamp for each guide wheel and guide plate
5 mounted for sliding movement on the mounting rod and including a
6 locking mechanism by which the clamp can be locked in a selected lateral
7 position, a guide wheel and a guide plate mounted to each clamp to move
8 therewith in lateral adjustment.

1 14. The apparatus of claim 13 further including an air
2 cylinder connected to each guide wheel and responsive to air pressure
3 supplied to the air cylinder to press the guide wheel connected thereto
4 against the top side of the conveyor belt.

1 15. The apparatus of Claim 13 wherein there are a pair of
2 mounting bars that extend laterally between frame members above the
3 top facing side of the conveyor belt, the pair of lateral guide plates and
4 guide wheels mounted to the mounting bars for sliding lateral movement
5 adjacent to the top facing side of the conveyor belt.

1 16. The apparatus of Claim 11 further including means for
2 detecting a plastic sheet extending outwardly from the discharge end of
3 the conveyor belt a selected distance and for controlling the motor of the
4 conveyor to shut off power to the motor when a section of plastic sheet
5 exiting the conveyor extends the selected distance from the discharge
6 end, and for supplying power to the motor to drive the conveyor when
7 the plastic sheet exiting from the conveyor does not extend the selected
8 distance outwardly from the discharge end of the conveyor.

1 17. The apparatus of Claim 16 wherein the means for
2 detecting includes a limit switch with a trip rod extending therefrom
3 mounted such that the trip rod is spaced a selected distance from the
4 discharge end of the conveyor in position to be contacted by a section of
5 plastic sheet discharged from the conveyor, the limit switch electrically
6 connected to the motor for the conveyor to shut off power to the motor
7 when a section of plastic sheet is in contact with the trip rod so as to trip
8 the limit switch, and to supply power to the motor to drive the conveyor
9 when the plastic sheet exiting from the conveyor is out of contact with
10 the trip rod.

1 18. The apparatus of Claim 16 further including a blower
2 mounted beneath the discharge end of the conveyor to blow air outwardly
3 to push the plastic sheet exiting from the conveyor away from the
4 discharge end of the conveyor.

1 19. The apparatus of Claim 11 wherein the conveyor belt
2 is formed of a flexible plastic material having a selected coefficient of

3 friction with regard to plastic sheet material to be supported by the
4 conveyor.

1 20. The apparatus of Claim 11 wherein the top facing
2 surface of the conveyor extending at an angle of approximately 30° from
3 horizontal from the intake end to the discharge end of the conveyor.

1 21. The apparatus of Claim 11 wherein the guides
2 comprise curved guide rods extending above and below the position of
3 plastic sheet exiting from the discharge end of the conveyor and formed
4 to guide the plastic sheet to a position where it is fed into the trim press.

1 22. The apparatus of Claim 21 further including means for
2 adjustably setting the lateral positions of the curved guide rods.

1 23. A canopy feed apparatus for a trim press comprising:

2 (a) frame members forming a frame;

3 (b) an endless belt conveyor mounted to the frame having
4 a conveyor belt with a top facing side extending from an intake end to a
5 discharge end and a motor connected to the belt to drive the belt; and

6 (c) means for detecting a plastic sheet extending
7 outwardly from the discharge end of the conveyor belt a selected distance
8 and for controlling the motor of the conveyor to shut off power to the
9 motor when a section of plastic sheet exiting the conveyor extends at
10 least the selected distance from the discharge end, and for supplying
11 power to the motor to drive the conveyor when the plastic sheet exiting
12 from the conveyor does not extend the selected distance outwardly from
13 the discharge end of the conveyor.

1 24. The apparatus of Claim 23 including guide wheels in
2 position to selectively press against a plastic sheet supported on a top
3 facing side of the conveyor belt at a position proximate to the intake end
4 of the conveyor and a pair of lateral guide plates in position above the top
5 facing side of the conveyor to laterally position an incoming sheet, and
6 means for mounting the guide wheels and the guide plates to the frame
7 for adjustment of the lateral position of the guide wheels and the guide
8 plates.

1 25. The apparatus of Claim 24 wherein the means for
2 mounting the guide wheels and guide plates to the frame includes at least
3 one mounting bar extending laterally between frame members above the
4 top facing side of the conveyor belt, a clamp for each guide wheel and
5 guide plate mounted for sliding movement on the mounting rod and
6 including a locking mechanism by which the clamp can be locked in a
7 selected lateral position, a guide wheel and a guide plate mounted to each
8 clamp to move therewith in lateral adjustment.

1 26. The apparatus of Claim 23 wherein the means for
2 detecting includes a limit switch with a trip rod extending therefrom
3 mounted such that the trip rod is spaced a selected distance from the
4 discharge end of the conveyor in position to be contacted by a section of
5 plastic sheet discharged from the conveyor, the limit switch electrically
6 connected to the motor for the conveyor to shut off power to the motor
7 when a section of plastic sheet is in contact with the trip rod so as to trip
8 the limit switch, and to supply power to the motor to drive the conveyor
9 when the plastic sheet exiting from the conveyor is out of contact with
10 the trip rod.

1 27. The apparatus of Claim 23 further including a blower
2 mounted beneath the discharge end of the conveyor to blow air outwardly
3 to push the plastic sheet exiting from the conveyor away from the
4 discharge end of the conveyor.

1 28. The apparatus of Claim 23 wherein the conveyor belt
2 is formed of a flexible plastic material having a selected coefficient of
3 friction with regard to plastic sheet material to be supported by the
4 conveyor.

1 29. The apparatus of Claim 23 wherein the frame is
2 mounted adjacent to a trim press with the top facing surface of the
3 conveyor extending at an angle of approximately 30° from horizontal from
4 the intake end to the discharge end of the conveyor.

1 30. The apparatus of Claim 23 further including curved
2 guide rods mounted to the frame and extending above and below the
3 position of plastic sheet exiting from the discharge end of the conveyor
4 and formed to guide the plastic sheet to a position where it may be fed
5 into a trim press.

1 31. The apparatus of Claim 30 further including means for
2 adjustably setting the lateral positions of the guide rods.

1 32. A method of feeding continuous plastic sheet material
2 to a trim press which trims formed parts from the surrounding plastic
3 sheet comprising:

4 (a) supporting a portion of the plastic sheet to be trimmed
5 on the surface of a conveyor belt of an endless belt conveyor;

6 (b) operating the conveyor to drive the belt in a direction
7 from an intake end of the conveyor to a discharge end to draw the plastic
8 sheet supported on the conveyor toward the discharge end and to
9 discharge a section of plastic sheet from the discharge end of the
10 conveyor and then stopping the conveyor belt;

11 (c) allowing the trim press to draw a section of the plastic
12 sheet discharged from the conveyor into the trim press for trimming; and

13 (d) then again operating the conveyor to draw the plastic
14 sheet material with the conveyor belt to discharge another section of
15 plastic sheet material from the discharge end of the conveyor and then
16 stopping the conveyor belt.

1 33. The method of Claim 32 wherein steps (c) and (d) are
2 repeated.

1 34. The method of Claim 35 further including guiding the
2 plastic sheet supported on the conveyor belt with guide plates positioned
3 adjacent to lateral side edges of the plastic sheet to laterally locate the
4 plastic sheet on the conveyor in proper position to be fed to the trim
5 press.

1 35. The method of Claim 34 further including pressing the
2 plastic sheet against the conveyor belt with guide wheels to hold the
3 plastic sheet in place on the conveyor belt as the conveyor is operated.

1 36. The method of Claim 36 further including detecting
2 when a selected length of section of plastic sheet has been discharged
3 from the conveyor during operation of the conveyor and then stopping the
4 conveyor.

1 37. A method of feeding continuous plastic sheet material
2 to a trim press which trims formed parts from the surrounding plastic
3 sheet comprising:

4 (a) supporting a portion of the plastic sheet to be trimmed
5 on the surface of a conveyor belt of an endless belt conveyor;

6 (b) operating the conveyor to drive the belt in a direction
7 from an intake end of the conveyor to a discharge end to draw the plastic
8 sheet supported on the conveyor toward the discharge end and to
9 discharge a section of plastic sheet from the discharge end of the
10 conveyor while allowing the trim press to draw a section of the plastic
11 sheet discharged from the conveyor, and driving the belt at a speed such
12 that the rate at which the plastic sheet is discharged from the conveyor
13 corresponds to the average rate which plastic sheet is drawn into the trim
14 press for trimming.

1 38. The method of Claim 37 further including guiding the
2 plastic sheet supported on the conveyor belt with guide plates positioned
3 adjacent to lateral side edges of the plastic sheet to laterally locate the
4 plastic sheet on the conveyor in proper position to be fed to the trim
5 press.

1 39. The method of Claim 38 further including pressing the
2 plastic sheet against the conveyor belt with guide wheels to hold the
3 plastic sheet in place on the conveyor belt as the conveyor is operated.